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# **Avid Technology, Inc.**

## **Business Plan**

*Revised: July, 1988*

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## Executive Summary

### Video Production — A large market; a big need for fast editing

Video production is a multi-billion dollar business in the US. Over 7000 post-production houses generate more than \$2 billion in revenues to produce video presentations for industrial and broadcast use. Over 1300 television stations produce their own materials. And most medium and large corporations have their own in-house video capabilities. Yet the equipment used to edit videotapes reminds one of the days of the Linotype machine — a brute force system that does the job, but is expensive, slow, difficult to use, and incorporates old technology. A radically new way to edit video is needed, and that is what the Avid/1 system from Avid Technology, Inc. provides.

### The Avid/1 Video Editing System

The Avid/1 does for video editing what word processing does for text editing — it makes it fast, interactive, and lets the user make creative decisions on the fly, and see the results instantly. The Avid/1 uses digital compression techniques to store video material on the large computer disks that are now becoming affordable. The system also digitizes and stores audio on disk. It uses industry-standard SMPTE time code to keep track of all material, just like current editing systems. Using a high resolution graphics screen, the Avid/1 gives the editor a full color editing environment, where he or she can instantly insert, delete, move, and rearrange video and audio material. The editor can play the program at any time, with no waiting for tape decks to find the material. Once the program is complete, the Avid/1 can assemble the complete production from the original tapes.

Current editing systems rely on building a master tape in sequence by copying segments from the original tapes to the master tape in a strictly sequential, or *linear* fashion. Once you have made a series of edits, changing an early edit means erasing and recreating all the edits that occur after the change. The Avid/1 system, by contrast, is a *non-linear editor* so you can make changes to any part of the program at any time. This greatly increases user productivity and creativity.

A prototype version of the Avid/1 system is operational now. The system was shown privately to over 50 editors and video post production professionals at the recent National Association of Broadcasters show in Las Vegas. The response was extremely positive, both in the verbal feedback, and from a detailed written survey, in which respondents gave Avid a 4.5 out of a possible 5.0 in overall product reaction.

### The Avid/1 Makes Existing Equipment More Productive

In addition to making a complete production in as a stand-alone system, the Avid/1 will generate an industry-standard *edit decision list* (EDL) that can be loaded into most existing editing systems. In this way, editors can generate an entire tape off-line, making creative decisions and seeing the results instantly. This off-line process gives users an excellent idea of what the final production will look and sound like, and lets them work without incurring high rental charges associated with current on-line computerized editing systems. Once the program is ready, the EDL is downloaded to broadcast-quality equipment, and the final production is made in just a few hours in the on-line suite. At \$1500-5000 per day for on-line editing, off-line editing can save thousands of dollars, and result in a better program, because creative decisions can be made without the pressure of the meter ticking away as the editor tries and reviews various alternatives in an expensive on-line editing suite.

### System Prices, Costs and Margins

The Avid/1 will be available in a range of configurations to meet the needs of particular types of editing. Short programs such as commercials will require less disk space, and an entry-level system selling for about \$50K may suffice. A more typical system will provide sufficient disk space for about 2 hours of video material, and will sell for approximately \$85K list.

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Initial systems will be based on low-cost Apollo workstations, combined with the recently-introduced Truevision Vista board for input and output of video. Avid will provide systems integration and software, and will deliver a complete system to end users. The high software content, along with off-the-shelf hardware, will support gross margins in excess of 60% at discount.

## **Selling the Product**

The Avid/1 is aimed at higher-end video post production houses, who provide the client with access to the most advanced equipment possible. Based on written surveys from the NAB show, the high end firms are quite willing to pay \$85K for the capabilities of the Avid/1. The initial products will be sold through a direct sales force. Four key cities dominate the video post production market: New York, Los Angeles, Chicago, and San Francisco. This concentration means it is feasible to reach a large percentage of the target market from a few offices. Initially sales will be handled direct from Boston, with a Los Angeles office planned for second half of 1989.

## **Future Products**

The Avid/1 system is designed for software portability. All software is written in the most portable language — C, and extra care is being taken to isolate any hardware dependent modules. We plan two types of lower cost systems in the future. One is a low-cost system based on the Apple Mac II (or the upcoming Mac III), and the other is a lower cost Apollo-based system that will allow users to network additional editing stations to their base system.

In addition to lower cost editing systems, we envision extensions of our technology into the emerging areas of desktop video and multi-media production. As standard PC's begin to integrate media capabilities, we have an opportunity to unbundle our software and sell applications packages. Sales of these products may be through dealers or other indirect sales channels.

We also see an opportunity to develop what we call "video postscript," which we are already creating in rudimentary form. This language will let an editing program fully specify a multi-media production, much like the Postscript language specifies a page description. Using video postscript, a "media printer" can automatically "print out" the finished production, complete with music, video, audio, graphics, and titles.

## **Competition**

The idea of non-linear editing is not new, and there are three significant non-linear editors currently on the market. What is new in the Avid/1 is the idea of a fully software-based, all digital editor, where the images are captured, compressed, and stored digitally, thereby giving editors maximum speed and greatest ease of use, along with lower costs. A quick overview of the competition illustrates the differences best.

The Montage Picture Processor is a non-linear editor that was introduced in 1985, and works by controlling 17 Sony Super-Beta tape decks. All 17 decks store the same material (up to 4 hours), and a computer fires off the 17 decks in sequence to allow the editor to preview a series of edits. The Montage currently sells for \$160,000, and about 40 have been installed nationwide. The cost and complexity of the Montage has limited its success.

The Ediflex is another tape-based editing system. It controls eight or twelve decks. About 60 have been installed, mainly in Hollywood for editing of 1-hour television shows. The Ediflex is aimed at a very specific market, and it is doing well in that niche. It is leased on a \$3000 per week basis.

The third current system is the CMX 6000, which uses laser video disks to provide instant preview of edits. This system is still in beta test. It requires the use of a separate, \$250K video disk mastering machine, so the system faces high startup costs. Furthermore, each disk costs about \$300 per half hour of program material.

## **Management and Development Team**

Avid Technology, Inc. was founded in September, 1987 by William J. Warner. Bill is an MIT engineer with ten years of high-tech experience at Computervision, Lexidata, and Apollo. Bill has personally invested \$100K, and is the company president and sole stockholder. Bill has worked on graphics and digital video projects at Apollo for four years. Apollo has been very supportive of Avid's development efforts, and a solid, constructive relationship prevails between Bill and his former employer.

Curt Rawley provides a strong financial and management background, with over 15 years of experience in management at Digital Equipment, Applicon, and Racal Electronics. He holds an engineering degree from Duke University, and an MBA from Harvard Business School. Curt is currently a consultant to Avid.

Jeff Bedell is the software architect, and has developed the bulk of the software to date. Currently, over 16 thousand lines of code have been written, tested, and successfully demonstrated at the recent NAB trade show. Jeff has ten years of experience, including both hardware and software engineering work at Computervision and Apollo.

Eric Peters brings to Avid 18 years of engineering experience, including major project responsibility at DEC and Apollo. He holds dual bachelor of science degrees from Cornell in Electrical Engineering and Computer Science. Eric was instrumental in developing the RT-11 operating system and DEC's Fortran IV compiler. He was one of the founding engineers at Apollo, where he developed key components of the Apollo software and hardware architecture. Eric is currently a technical consultant to Avid, but he is likely to join Avid full time after our funding is arranged.

The development team also includes four other engineers, one full time, and three on a consulting basis. It is significant to note that Avid has developed a working prototype, outfitted 3000 square feet of space, procured nine engineering workstations for its development effort, demonstrated the product at a major trade show, and began active evaluation of potential beta test sites, all with the personal funding provided by Bill Warner.

# *Market Overview*

## **Film and Video Productions**

Avid's technology is applicable to a wide range of media productions, and this section will explore the various types of productions, the production process, and where Avid plays a role.

### *TV Commercials*

Commercials run from 15 seconds to 2 minutes in length. As the cost of air time goes up, advertisers are reducing the length of commercials, while still trying to pack in the same information content. The result is much more heavily edited, more carefully crafted commercials, and editing becomes more crucial. Editors and producers need a fast way to review lots of different ways of editing a particular commercial to find the way that looks and feels best. Also, commercials are often multi-layered, meaning that the viewer sees multiple video images at once, further complicating the editing process.

### *Marketing Videos*

These program-length commercials typically run from 7 to 12 minutes, and provide a detailed look at a product or service. Corporations use marketing videos to introduce new products to their customers and sales force in a way that print media cannot match. These programs typically have high production values, and use lots of graphics, animation, and digital effects.

### *Music Videos*

The music video is a recent phenomenon, but virtually all major song releases also include a video. These productions are short, but highly complex, and excellent editing is very important.

### *Training Videos*

Training videos typically run 20 minutes to 2 hours. Advanced programs, such as Xerox' training programs for sales people, contain high production values to maintain viewer interest. With the trend away from dry, man-at-blackboard approaches, editing is playing a larger role in making training videos that deliver results.

### *Half-Hour TV Programming*

Prime-time network television can be broadly categorized into half-hour and one hour shows. Half hour shows are typically situation comedies shot on video using multiple cameras. Editing is straightforward — there are no special effects or graphics, but timing is critical.

### *Episodic (1 hour) TV Programming*

The episodic shows such as *LA Law* or *Dallas* are typically shot on film (which still provides the best image quality) then converted to video for editing and delivery. A typical one hour show can have between 800 and 1000 edits. Mike Most, a producer at Lorimar reports that editing for a typical Lorimar production takes about three weeks per episode.

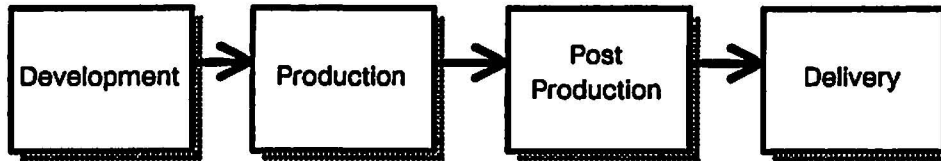
### *Feature Films*

Feature films are the largest and most complex types of productions. A typical film runs 100 minutes, and can have thousands of edits. Action sequences are especially editing intensive. Currently film editing is done as it has been for years — by physically cutting and glueing film. There is a growing trend, however, towards converting the film to video for editing, and only once the edit is completed

on video is the cut list given to the film cutter who actually assembles the finished version from the original negatives.

## **The Production Process**

Virtually all productions follow a similar production process, but the emphasis on each step, the number of players involved, and the technology used may vary widely.



### *Program Development*

A program begins with a concept, which is then developed into a script. The development process is a crucial stage where many key decisions are made. While this stage is critical, it is low in cost. Creating the concept and writing the script doesn't cost much compared to the other parts of the process.

### *Production*

The actual production involves casting, building sets, and shooting the program. Some productions are shot on film, others on video. Some are shot with a single camera, others with multiple cameras all synchronized so the editor has a variety of angles to choose from. Production is usually the most expensive part of the process.

### *Post Production*

Getting the raw footage is a bit like mining ore — you get tons of material, but what you do with it next determines the true value. Editing is the central part of post production. Other aspects of post production, such as music, sound effects, titles, audio mixing, are directly related to the editing. Editing is the key to the look and feel of the program. Identical material can be edited in dramatically different ways to produce different results.

### *Delivery*

Once the program is completed, it must be prepared for delivery. A marketing video might be duplicated and distributed to customers on videocassettes. A television program is output to 1" videotape for later broadcast, while a film is handed over to an expert negative cutter for assembly of the final edited film master.

## **The Video Editing Process**

Editing is a fairly simple process at its core — you juxtapose short segments of picture and sound to make the program flow smoothly and hold the viewer's interest. A typical television program has an edit every 3–5 seconds, while a TV commercial can easily have an edit every second. Most TV viewers have no idea of the amount of editing that goes into a typical production, with many 1 hour shows having 800 to 1000 edits per episode.

### *On-Line Editing*

On-line editing means that as you edit, you are making the final edited master. This involves copying chosen segments from your original tapes to a very high quality master tape, usually a 1"

broadcast-quality tape recorded on a \$60,000 studio tape deck. On-line editing is very expensive, because it requires very specialized equipment, and professional editors who know how to run the equipment. On-line editing costs between \$200-800 per hour. The vast majority of video post production facilities provide on-line editing.

### *Off-Line Editing*

Off-line editing is an important way to save money in the editing process. Original tapes are copied to low-cost media, such as 1/2" VHS tapes, and the editor uses low-cost equipment to make a rough edit. Current off-line editing methods are no faster than on-line editing, but costs are lower because off-line edits are usually done using much less costly equipment. The result of the off-line edit is an edit decision list, which can be transferred to the on-line editor, and the finished program can then be assembled mostly by machine.

### *Linear Editing*

Most current editing systems rely on building a master tape in sequence by copying segments from the original tapes to the master tape in a strictly sequential, or *linear* fashion. Once you have made a series of edits, changing an early edit means erasing and recreating all the edits that occur after the change.

Linear editing is a necessary result of the limitations of current editing technology. Because it takes so long for a tape deck to locate a particular segment of video material, the only way to let an editor see what a program will look like is to actually record it, segment by segment, to the master, and then play it back from the newly recorded tape.

Linear editing has two main drawbacks: Finding and recording footage is a slow, sequential process, and once the recording is made, it cannot be easily changed.

### *Non-Linear Editing*

Non-linear editing means that you can make changes to any part of the program at any time, in any sequence. Film editing is inherently non-linear, since you can easily snip out a segment, or add a segment without having to rebuild the rest of the movie. Most film editors find it extremely frustrating to work with video, because they are used to non-linear, rather than linear editing.

But film, like videotape, can only be accessed sequentially. It takes time to find a segment of film on a film reel, just as it takes time for a video deck to shuttle to a segment of video.

### *Random-Access, Non-Linear Editing*

The ideal editing method combines a non-linear editing technique with a way to access all needed video and audio segments instantly. With random access, there is no need to record anything to a master tape — the system simply plays each element of the program in sequence, switching seamlessly from one segment to the next. Changes are easily made to any part of the program, and the result can be viewed instantly.

Avid is building a truly random-access non-linear editor. Other systems, such as the Montage and the Ediflex are non-linear editors, but they are not truly random-access. Since they are tape-based, it takes time (sometimes minutes) to locate a particular segment of footage. These systems use multiple tape decks to reduce this delay by pre-locating the desired segments, one on each deck. The systems can preview an edited sequence, but only for a few segments — 8 for the Ediflex, or 17 for the Montage.

Since the phrase "random-access non-linear editor" is quite a mouthful, we will say non-linear when we mean random access, non-linear.

### *The Advantages of Non-Linear Editing*

Non-linear editing is much faster than linear editing, for a number of reasons:

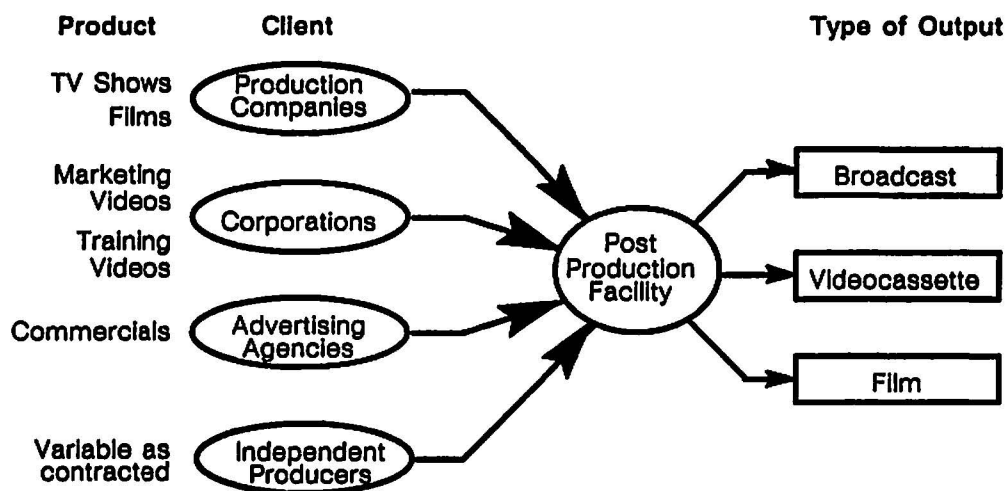
1. Material is available instantly. No waiting.
2. Edits can be changed at will, at any part of the program
3. Different ways of editing a sequence can be compared quickly.

Our surveys from the NAB show indicated that a typical linear editing session proceeds at a rate of about ten edits per hour. With a typical program having an edit every 3-5 seconds, this means it takes up to an hour of editing to get just 30 seconds of finished programming.

Non-linear editing speed can be up to ten times faster, since any edit can be created instantly, and the result viewed immediately. Additionally, the increased flexibility of non-linear editing will provide editors with a tool that frees them from current frustrations and lets them use their creativity to deliver a higher quality program.

## Post Production Facilities — The Focal Point for Editing

Post production facilities — “post houses” play a universal role in all productions. Whether the facility is independent or in-house, it provides the equipment, facilities, and talent required to create the final production.



Because current non-linear editors are so expensive, their penetration into post houses is very low. But since non-linear editing is a much faster and more natural way to work, a practical non-linear editor will have broad applicability in the video post production marketplace.

### Post Production Clients

Four major types of clients funnel projects through post houses. Production companies create programs ranging from television shows to training videos. Corporations use post houses to create videos developed by in-house producers or through production companies that they hire. Advertising agencies use post production facilities to deliver completed commercials, and independent producers work for any of the other three groups to develop, shoot, and supervise production of program material.

### The Role of the Post House

The post production house provides the client with access to equipment and talent.

#### Creative Talent

The post house staff includes talented editors who know how to make a program work. They understand pacing, program structure, and the equipment needed to build the program.



<b>Technical Talent</b>	Post production is a highly technical task, and it requires expert knowledge of equipment and systems.
<b>Capital Equipment</b>	Broadcast-quality video production requires equipment costing millions of dollars. It is not economic for most clients to maintain in-house broadcast-quality facilities.
<b>Latest Technology</b>	The post house, especially the high end houses, provide the client with access to the latest technology. Since video technology changes so quickly, clients depend on their post houses to provide the most current performance and functionality available.

### ***The Creativity Gap***

The sheer magnitude of equipment and technical talent needed to make a video production usually overshadows the creative aspects of making a video. Once you are in the post house, the meter is on, and there is no time for much experimentation. The linear nature of current systems means that changes are extremely hard to make. The result is a process that delivers extremely high *technical* quality, but often limits *creative* quality. This leads to a creativity gap — the post house has the technical and creative talent that clients want, but the current editing systems limit how much the client can use that talent.

### ***Benefits to the Post House***

The Avid/1 system will provide the post house with a number of benefits that will help them reduce costs, attract new clients, increase throughput, and generate higher quality programming.

<b>Lower Costs</b>	Post houses usually bid on a complete job. By leveraging time on an Avid/1, the post house can meet the client's needs faster, without tying up their on-line suites.
<b>Attract New Clients</b>	Post houses are highly competitive. Clients typically spread their work across multiple houses. The post house with an Avid/1 will have a significant advantage that will help them attract new business.
<b>Increase Throughput</b>	The on-line suite is usually the bottleneck in a post house. Adding an Avid/1 is much like adding an on-line suite, but without the cost. The system will feed nearly-completed programs to the on-line suite, thereby increasing overall throughput.
<b>Higher Quality Programs</b>	By letting editors be more creative, the Avid/1 system will let editors focus more on content, leading to higher quality programs and increased client satisfaction.

### **Market Size**

Reliable information on the number of video post production facilities is available through published industry surveys. The Video Register lists 1750 video post production facilities in the US, while Millimeter's annual survey lists 1500. These firms are the larger, specialized firms that specialize in post production. American Business Lists shows over 7000 video production companies nationwide. These firms often have low-cost off-line editing capabilities, and they feed on-line editing work to the larger post houses.

Video post production facilities tend to be clustered in a few key areas of the country. The New York and Los Angeles areas are the two largest markets, with San Francisco and Chicago also having very large concentrations of post houses. Approximately 75% of the post production market is concentrated in only 10 states. This concentration will help reduce marketing costs, and will allow us to cover most of the market from just a few sales offices.

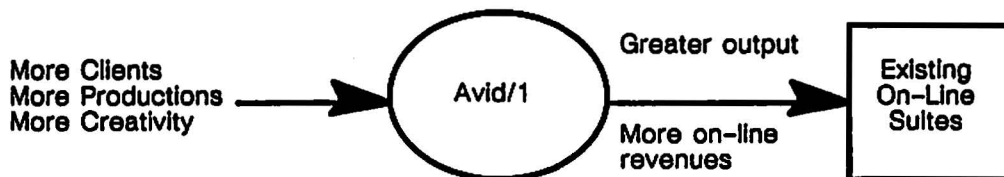
*Table 1. Video Post Production Statistics*

Type of Facility	Quantity	Source
Video Post Production Facilities	1500	Millimeter Magazine Annual Survey.
	1750	Video Register.
Video Production Companies	7380	American Business Lists.
Television Stations	1300	National Association of Broadcasters.
In-House Industrial	7500	In house estimate. Based on ratio of five corporate facilities for each commercial video post production facility.
Organizations w/ 3/4" Video Equip	160,000	Hope Report.
3/4" Editor sales per year	6000	Former National Sales Manager, for JVC.
Industry Spending for all A/V Products	\$8.4 B	Hope Report estimate for all media and equipment, including video.

### Capital Spending Patterns

Because video technology changes so quickly, post houses devote large parts of their budget to capital equipment. The professional and broadcast equipment market is well over \$1 billion. Ampex, one of the largest suppliers, reported yearly sales of over \$600 million. Other key players include Sony, JVC, Hitachi, 3M, Harris, Chryon, Grass Valley, Tektronix, Abekas, Quantel, CMX and others.

Our interviews with managers at post houses indicate that a facility with two edit suites has a capital equipment base of about \$1-2 million, and that the firm spends about \$250-500K per year to keep their installed assets current.



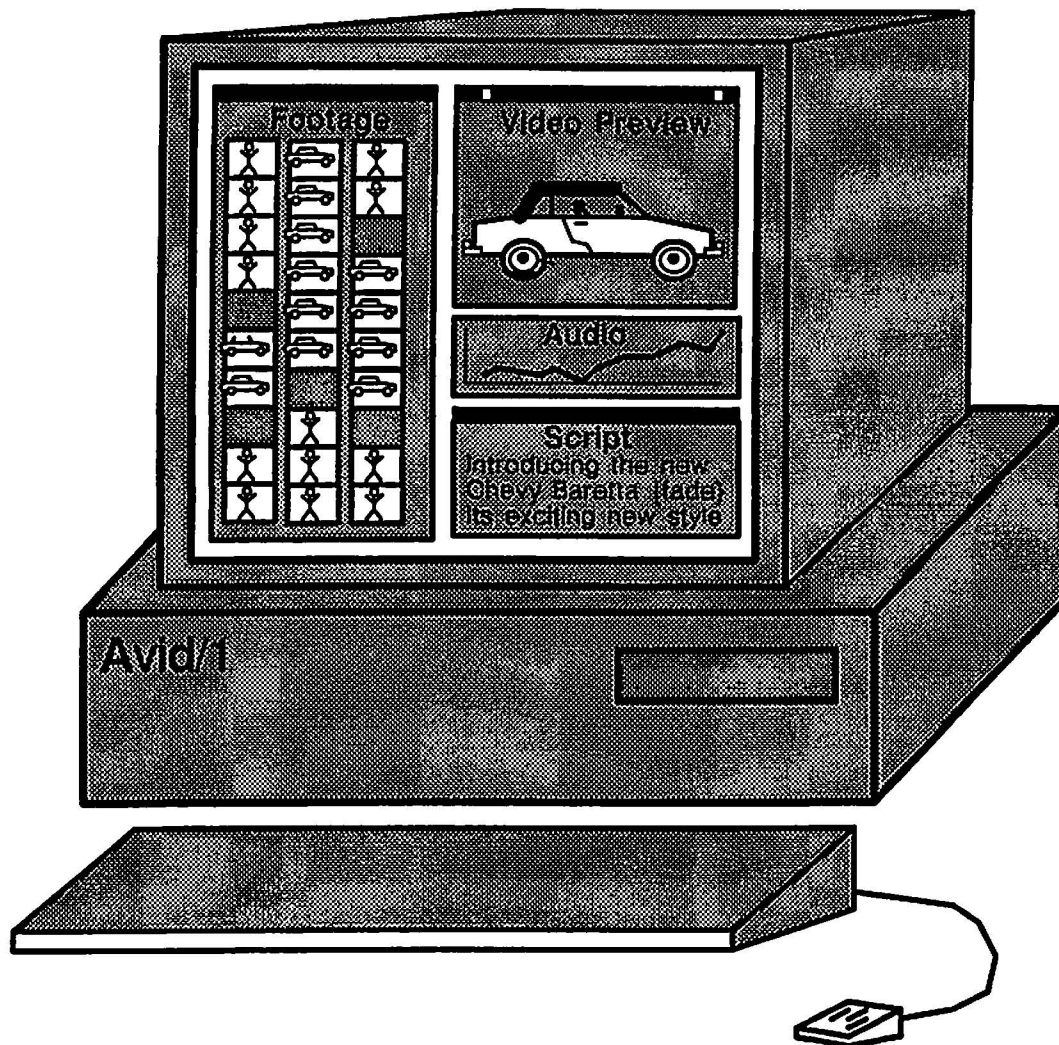
The Avid/1 system will help post houses extend the life of their existing capital equipment, because the system leverages their installed base by providing greater throughput without adding new on-line suites.

### International Markets

Reliable data is not yet available on the size of the international marketplace, but we estimate that Europe and Japan constitute a market equal in size to that of the US. Avid will explore distribution relationships to provide product distribution overseas. In addition, we are designing the product with international considerations in mind. For example, we are making it easy to change the language of all menu items.



## Product Overview



The Avid/1 is an advanced, non-linear editor that provides random access to all video footage. Its easy-to-use interface frees editors from dealing with time code numbers, and lets them focus on making the best program possible.

### System Features

The Avid/1 has features not found in any other editing system. The whole premise of the Avid system is to provide real time, interactive editing of video and audio material. This is a new concept for a low-cost editing system, and it will provide unprecedented levels of creative control and editor productivity. Here is an overview of the key features of the Avid/1 system:

#### Digital Video Storage

All video material is stored digitally on the system disk. A combination of video compression and image subsampling reduces data requirements. A system with a 750 Mbyte disk can hold approximately one to two hours of video material, depending upon the level of compression used.

<b>Auto Assemble</b>	When the editor has completed the program, the system will automatically assemble the final videotape by using the edit list to control tape decks. The final videotape is made directly from the original footage, and has full resolution. The digitally-stored video is used only as reference for the editor during the editing process.
<b>Digital Audio Storage</b>	The system stores audio in digital form. This digital sound can be recalled at any time and manipulated, giving the editor full control over the audio as well as video programming.
<b>Real-Time Preview</b>	The system lets the editor see the entire program as it is being created. Using the digitized audio and video, the system can instantly generate the audio and visual results of editing. No more waiting for tapes to shuttle, no more having to imagine how the audio will sound.
<b>Compatible Edit List</b>	The Avid/1 generates an industry-standard CMX-compatible Edit Decision List (EDL). This EDL can be loaded into an actual CMX or compatible editing system for generation of the final program, or can be used to generate the program locally.
<b>Multi-Media Editing</b>	With the Avid/1, you can edit in the environment that is most appropriate for a particular edit. For example, if you want to rearrange parts of the presentation, you might just cut and paste from the script, which will move the video and audio material automatically. If you want a certain video scene to end at an exact moment in the audio program, you can match these visually, and the system will automatically generate the correct edit-in point.
<b>Multiple Edit Paths</b>	Because all video and audio is stored digitally, the material is instantly accessible. The system can store multiple edit paths through the material, so the editor can compare various ways of editing a scene. This feature will be especially popular for editing TV commercials.
<b>Videotape Database</b>	A database for cataloging video and audio material is a key part of the Avid/1. The system lets the editor quickly locate any video or audio material, by searching for keywords, scenes, camera angles, etc. The database is quite flexible, and lets the editor create new categories at will, and search multiple categories simultaneously.
<b>Cataloging Interface</b>	The Avid/1 makes it easy to catalog videotape footage. Finding footage is often the most time-consuming task in editing. The Avid/1 lets editors enter notes directly into the system. The Avid/1 automatically reads timecode from the tape, and records all information for easy retrieval later.
<b>Automatic Cataloging</b>	Because the system digitizes video frames, it can also detect drastic changes in the frames that indicate a new shot. Using this information, the Avid/1 can generate and print a storyboard overview of original footage, thus speeding the cataloging process.
<b>Storyboard Printout</b>	The Avid/1 can print out a visual storyboard of the edited program, showing the head and tail scenes from a particular edit. The system can also show frames from within the scene to give the viewer a better understanding of the program.
<b>Character Generation</b>	The Avid/1 makes it easy to overlay characters and simple graphics, such as lines and boxes, over the video image.

### Switcher Effects

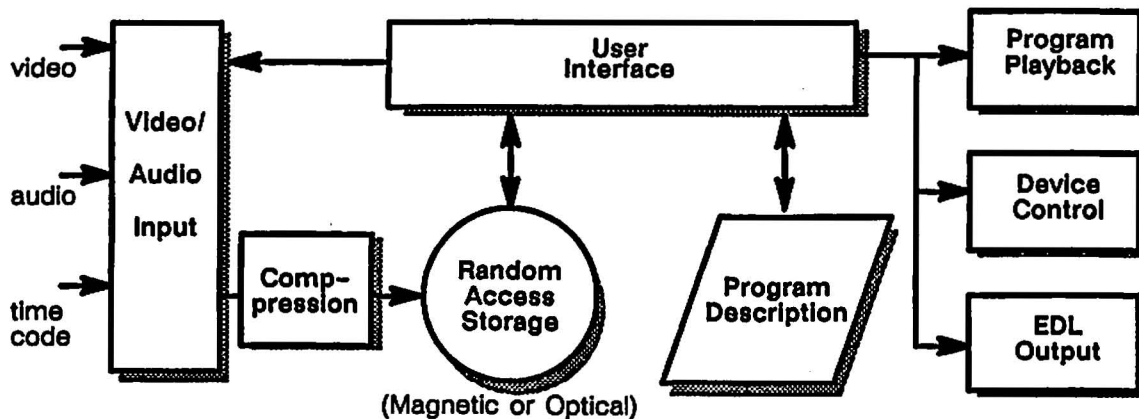
The Avid/1 can simulate a wide range of switcher effects, such as wipes, fades, patterns, etc. The system shows the editor these effects in real time, and lets the editor make changes to any effect in the program at any time.

### DVE/ADO Preview

Digital video effects play an important role in many industrial, advertising, and news-related programs. The Avid/1 can generate a wide range of DVE/ADO effects in real time. This lets the editor see what the program will look like, complete with digital effects.

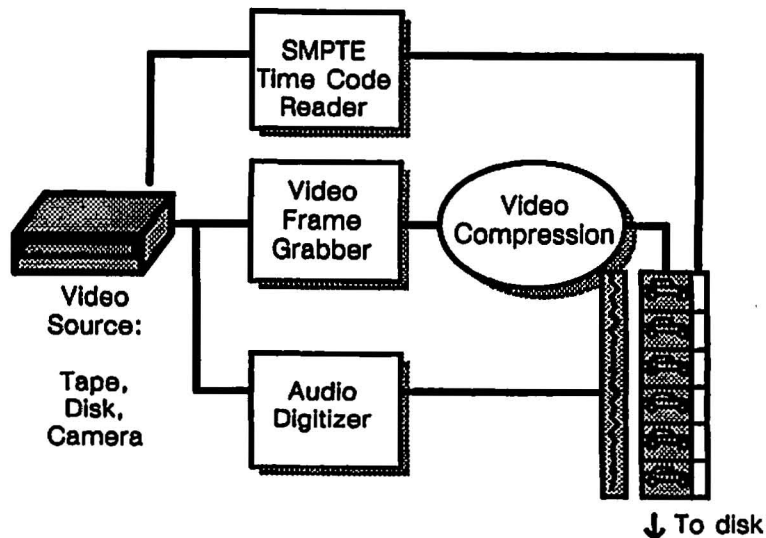
## System Overview

The Avid/1 system combines a number of technologies in a new way to deliver a better way to edit video programs. This section will outline the system at a high level, mainly to help the reader understand how future technology trends will affect Avid's product development process.



### Video/Audio Input

One key element of the Avid/1 is random access to all video and audio material. To do this, we provide an input system that digitizes video, audio, and time code, and stores this on magnetic or optical disk.

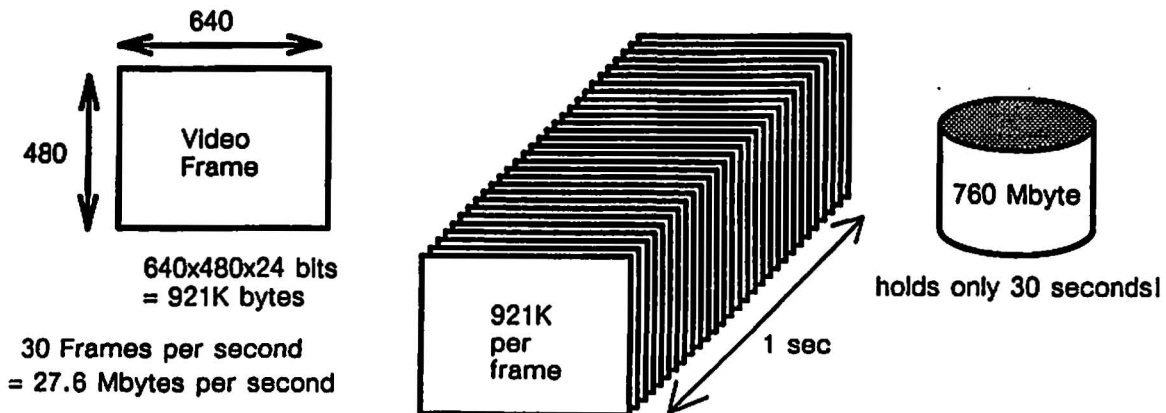


The Avid/1 will use off-the-shelf hardware wherever possible. However, the input digitizing may require development of a special board that can handle the data rates required to digitize video, audio, and time code all simultaneously. We are currently testing various alternatives for this part of the system.

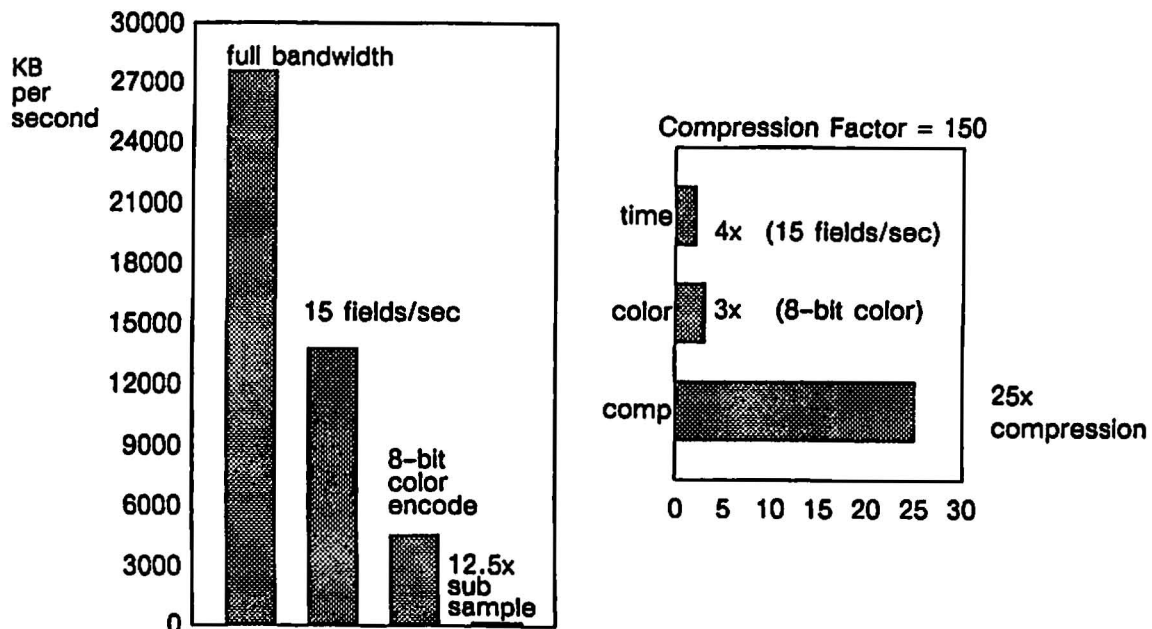
A number of technologies are currently in the development stages that will allow us to improve this part of the product over time. Most promising is Digital Video Interactive (DVI), a product developed by RCA for delivering full motion video on CD ROM. DVI is currently in the beta test stage, and we are working closely with one of the beta test sites to see how DVI can play a role in our product.

### Compression

Full resolution digital video requires huge amounts of data to be stored and processed. As the figure below shows, full resolution digital video requires almost 30 Mbytes of storage per second!



But for editing purposes, you can work with lower resolution. We can drastically reduce the data rates, while still providing sufficient information for editing.



As shown in the figure above, we reduce the original data by a factor of 150, yielding a data rate of under 200K bytes/sec — which most disks can process in real time. At these data rates, a large 760

Mbyte disk holds one hour of footage, and we hope to double this figure through additional compression techniques.

Technologies such as DVI will let us provide even better levels of image quality without increasing the data storage requirements.

### *Random Access Storage*

The Avid/1 system can use a variety of storage devices, including magnetic or optical disks. The key is to keep the data rates low enough so that off-the-shelf disks can provide sufficient bandwidth.

Optical storage is especially important in this application, because editors like to have access to many hours of footage. Erasable optical disks that store 1 gigabyte on a 5 1/4" removable low-cost (under \$100) cartridge will be available in mid-1989. Maxtor and Sony have already announced devices, and samples will be available at the end of 1988. Avid will move swiftly to incorporate optical drives, since they will eliminate the storage limitation of magnetic drives. Optical drives will provide such abundant storage that the Avid/1 may eventually be used for editing of feature films, where hundreds of hours of footage are shot for a 2-hour film.

### *User Interface*

The Avid/1 user interface is one of two core elements of our product. While the underlying technologies will change very quickly, we are designing an editing approach that will last. The user interface is optimized for random access to video and audio material, for quickly finding specific footage according to a range of criteria, and for quickly incorporating that material into an edited sequence. The user interface is portable — we can use new platforms as technology allows and the marketplace requires.

It is important to separate the user interface from the specific underlying hardware. In the future, when broadcast-quality random-access video devices are available, video compression may not be required, but a fast user interface to get to material, and to organize it into a program, will still be crucial. We are investigating patent protection for some of our user interface techniques.

### *Object-Oriented Video Program Description*

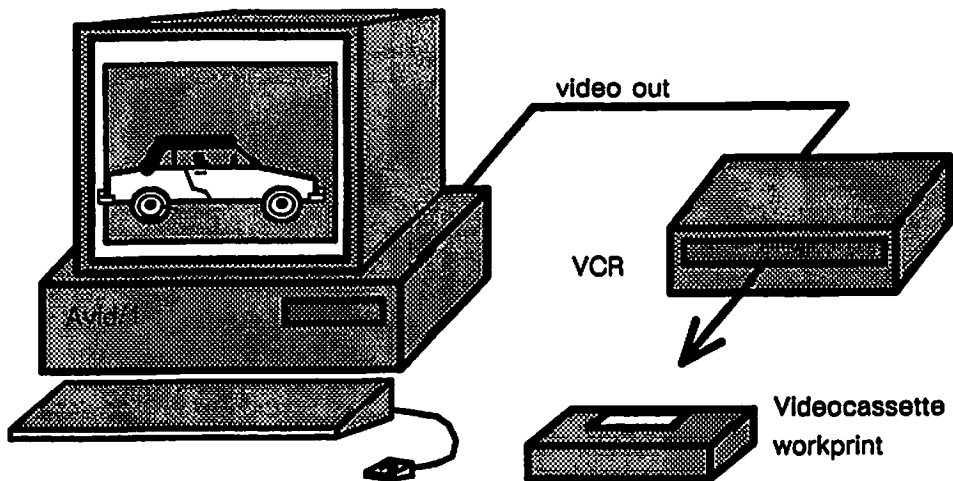
The second core element of our product is the video program description. Our system uses an advanced, object-oriented internal description that can handle extremely complex videos. The system stores audio, video, effects, music and other media as *objects*. This method makes it easier for the system to handle multiple media simultaneously.

Currently, there is no abstract way to store a complete description of a video program. This means that video productions are produced manually, and cannot be recreated by machine. As part of our system, we are creating a "video postscript" that describes a complete video program. We see some future opportunity to make this description method into a product, much as Adobe has made Postscript the de-facto standard for all laser printers. In addition, we believe that our techniques in this area may be patentable.

### *Program Playback*

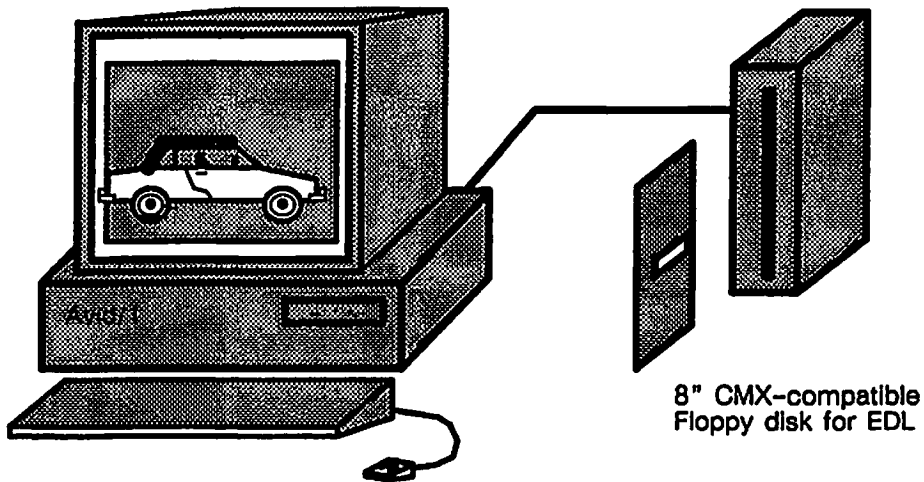
The Avid/1 lets the editor play back the program at any time, and make changes at will. The Avid/1 plays back from the compressed video representation stored on disk. It traces through the internal program description to determine what sequences to play, and how to add effects, change audio levels, etc.

The program playback can be captured by recording direct to a VCR. The result is a workprint that the client can use for review, as shown in the figure below.



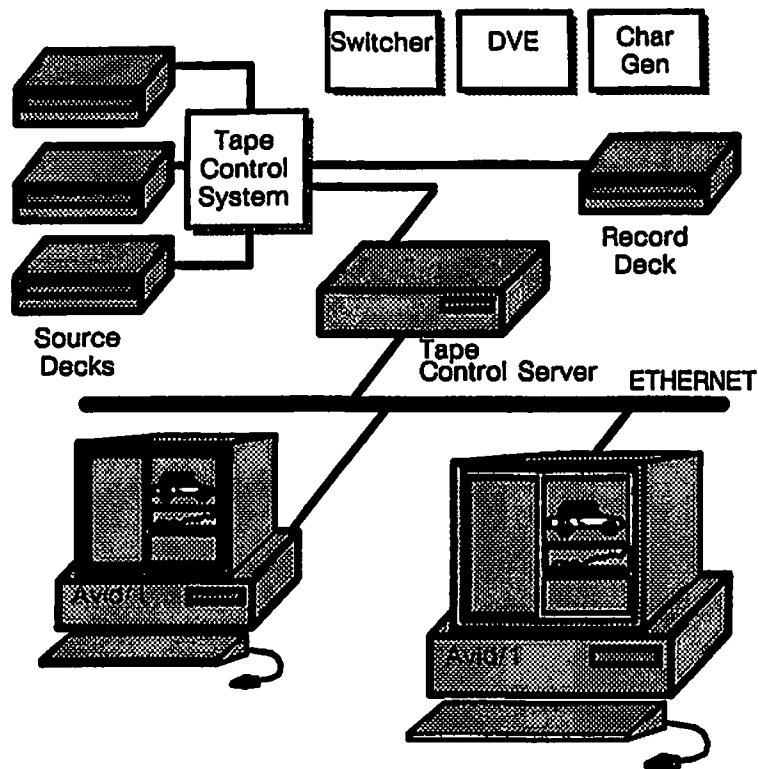
### *EDL Output*

To facilitate making the finished program in the on-line suite, the Avid/1 can generate a floppy disk containing the edit decision list from the internal representation.



### *Device Control*

The third method of program output is to actually control a series of input decks, and auto-assemble the finished program directly.



This capability provides a number of future possibilities for product expansion. First when used to control low-cost decks, it lets a corporate customer create industrial-quality programs locally, without going to the post house.

At the post house, the same systems can control the broadcast-quality decks. By adding control for a video switcher, we can provide functionality similar to current editing systems, but with a much more advanced user interface, and the advantage of digital storage for instant preview of edits.

# Competition

## Overview

The idea of a random-access, non-linear editor is not new. This section will provide an overview of the current competition, as well as a look at some expected competitors who do not currently have products.

## Categorizing the Competition

There are currently five systems that fit in the same market space as the Avid/1. In addition, there are systems that are related to the Avid/1 in that they provide random access to video material, or they provide non-linear editing for broadcast-quality material.

The charts below help illustrate how the Avid/1 relates to its competition. Most editing systems on the market today are linear editors. There are over 20 brands of linear editors available, varying in price from \$50-75K for the most advanced on-line edit controllers, to as low as \$5K for low end off-line systems.

In the non-linear editing area, there are five off-line editors on the market, and one on-line system. The second chart shows how the non-linear systems compare. Three of the non-linear systems are tape-based, so they don't provide random access to material. This means they are much slower systems. Of the two existing random access systems, only the CMX 6000 is being marketed to post houses. The Spectra system is available only on lease, and is mainly an in-house system developed by LaserEdit, a Hollywood post house.

### Editing Systems

On Line	CMX Paltex Ampex Sony ..many more	(Spectra)	Quantel
Off-Line	CMX Paltex Edit Master ..many more	Montage BHP Ediflex	CMX 6000 Spectra Avid
	Linear	Non-Linear Sequential	Non-Linear Random Access

## CMX 6000

The CMX 6000 is a laser-disk based non-linear editor. It is built by CMX, the industry leader in on-line linear editors. The system integrates an IBM PC, and controls up to 16 industrial-grade laser disks to provide random access to video material. The user interface is strictly text-based. The system is aimed mainly at longer programs such as television shows, and feature films. Although CMX claims an entry price of about \$50K for a 1/2 hour system, a typical 2-hour configuration costs well over \$100K.



The CMX 6000 has a major drawback — it requires pressing an optical disk for all video footage. This is a serious limitation, since the video disk pressing equipment costs about \$250K, and the quality of the disks it produces is limited at best.

The 6000 is currently in beta test, and is beginning to gain acceptance. However, the drawback of the video disk will limit its applicability. Compared to the 6000, the Avid/1 is less expensive, faster, requires no video disks, uses less space, and can edit much more complex programs.

### *Spectra System (LaserEdit)*

The Spectra System is a hybrid on-line/off-line editing system. The custom-built system can control laser disks for fast random-access off-line editing, and can then control 1" decks to make the finished edit on-line through sequential access to the original tapes. Using the system, LaserEdit specializes in 1/2 hour sitcoms, and now provides editing for 14 of the 18 sitcoms currently in production.

The Avid/1 will not compete directly with the Spectra system, which is available only on lease. The Avid/1 is a much less expensive, less complex system, and it is aimed at a broader audience.

### *Montage*

The Montage Picture Processor is a tape-based non-linear editor that provides real time preview of an edited sequence by controlling 17 super-beta tape decks in sequence. The system was introduced in 1985, and was aimed mainly at film editors. The initial cost of \$250K severely limited its acceptance, as did a host of technical problems. Montage, which is based in Littleton, MA, went bankrupt. It was bought at auction by entrepreneur Simon Haberman, who has restarted the company. The newer Montage system solves earlier technical problems, and sells for \$160K. About 40 systems are installed, mainly at high end post houses that are involved with film-based productions.

The Montage is extremely large, requiring three floor-to-ceiling 19" racks just to hold the tape decks. Like other tape-based systems, the Montage can only preview a limited group of edits, (17) and a series of short edits will cause it to abruptly stop as it waits for the tape deck to find the right footage. By comparison, the Avid/1 system is much more compact, costs about half as much, provides instant access to footage, and can handle much more complex edits.

### *Cinedco Ediflex*

The Ediflex is a tape-based system like the Montage, but it is aimed specifically at one-hour episodic television. The Ediflex requires the editor to divide the script for the show into blocks, and assign footage to each block. Once this is done, the system makes it easy for the editor to locate footage relevant to each part of the script. The system uses an embedded PC to control 8 or 12 VHS tape decks. The Ediflex is available only on lease, at a cost of about \$3000 per week. Cinedco says they have a total of 67 systems, with 40 systems on lease during most of the season.

The Ediflex has done extremely well in its chosen niche, and we do not expect to compete directly with Cinedco. The Avid/1 does have advantages over the Ediflex — speed, cost, and ease of use.

### *BHP Touchvision*

The BHP Touchvision is the latest tape-based non-linear editor. It uses a touch screen with computer-generated menus to simplify operation. The BHP can control up to 24 tape decks. It is available for sale (unlike the Ediflex) and seems to be aimed at Ediflex's market. The system is just now entering production. BHP is a spin-off of Chicago-based Bell & Howell.

### *Quantel Harry*

The Quantel Harry is much different than the other systems listed above, because it is an on-line, non-linear system that provides full broadcast quality output. The system is mainly used for animation,

special effects, and TV commercials where lots of effects are used. Because it digitizes video at full resolution, it can only hold 80 seconds of material. It costs about \$400K. The system is included here because it does provide a very graphical editing interface, and it lets editors make changes to short programs at will.

The Avid/1 is a complementary product to the Harry. If a firm has a Harry, they already understand the benefits of non-linear editing for short programs, and may well want to expand their capability to include longer programs.

### *Editing Machines, Inc.*

Editing Machines, Inc. (EMI) is a company that is being formed by Bill Ferster, who earlier started an animation software company called West End Films, Inc, which he sold to Pansophic Systems, where Bill is currently employed. Bill is about to leave Pansophic to develop a product similar in some ways to Avid's, but aimed at in-house corporate editors rather than post houses. Bill says he's aiming at a \$35K sell price, marketing through dealers. Editing machines is developing a special hardware board for a 386 PC. They have not yet started software development, but claim they will have a product at the NAB show in April, 1989.

Initially, Avid and EMI are aiming at different markets. However, Avid's strategy is to build a base at post houses, and then branch out to corporations. We don't believe that corporations will embrace this technology until they see it in action at post houses. In the long run, though, Avid and EMI will be competing for the corporate market. While EMI is focusing on hardware, we are focusing on software. We believe our system will be much more advanced than EMI's and that hardware developments already underway in the industry will let us deliver our more advanced software capabilities on standard low cost systems in the future.

*Table 2. - Current Non-Linear Editing Systems*

Company	Product	Technology	Comments
CMX	CMX-6000 \$100K+	up to 16 laser disks	Currently in beta test. Laser disks are write once, cost \$300/hr
Montage	Picture Processor \$160K	17 Tape decks	Started in 1981. Failed. Sold at auction. Resurrected. Installed 50 systems. Initially sold for \$250K, now \$160K
Cindeco	Ediflex \$100K	multiple tape decks (8 or 12)	Specifically targeted at Hollywood. About 60 installed.
BHP	Touchvision	multiple tape decks. (up to 24)	A few are installed. Started by Bell&Howell
Spectra	LaserEdit	up to 8 laser disks	Specifically targeted at Hollywood. Mainly a rental system
Quantel	"Harry" \$400K +	digital disk holds 80 sec	Broadcast quality. Full digital storage. Aimed at animation and commercials.

## **Competitive Summary**

The Avid/1 system is a new approach to editing, using an all-digital storage system instead of tape decks or laser disks. While there are companies currently providing non-linear editors, no other company offers a product with the capabilities of the Avid/1.

The Avid/1 system is faster and lower in cost than the three tape-based systems. It is lower in cost and easier to use than the two laser disk-based systems, and can record material locally with no need for an outside disk-mastering company to generate the laser disks. The Avid/1 can handle digital effects and switcher effects, something that none of the current systems can do.

We do know of at least one company that plans to use technology similar to Avid's to deliver a non-linear editor. But we believe that our focus on advanced software, rather than specialized hardware, will give us a lasting market advantage.

# Marketing Strategy

## Overview

The Avid/1 is aimed at high end post houses. We will sell through a small direct sales force in major cities, and through representatives in smaller markets.

The video market is highly concentrated — there are a relatively small number of key individuals and companies that are opinion leaders for the industry. Our product rollout will target these key individuals and companies. We will make maximum use of the press to get initial name recognition.

## Segmenting Post Production Needs

While the post production facility is central, it is important to segment the customer needs in order to see where the Avid/1 fits best. Here are the editing characteristics that are best suited for the Avid/1 system.

*Table 3. Applicability of the Avid/1 System*

Parameter	Comment
Length of unedited material	Initially under 2 hours is best. Optical drives will eliminate this limitation.
Program Length	Shorter is generally better. 10-15 minutes typical. Longer programs can be done in sections.
Program Complexity	The Avid/1 is designed to handle complex programs. As complexity increases, the benefits of the Avid/1 increase.
Edit Rate	A program with an edit every few seconds benefits greatly from the speed of the Avid/1. The trend is towards ever higher edit rates.
Audio Edits	Since the Avid/1 can do audio edits as easily as video, more that audio editing increases the benefits that the Avid/1 delivers.
Review Process	The Avid/1 can generate review-level work prints very quickly. If the reviewers are willing to work from these, the Avid/1 is extremely attractive. If a high quality workprint is required, the Avid/1 can assemble it from the tapes, even while doing other tasks.
Turn around time	Most of the program types that the Avid/1 is best suited for take weeks or months to produce, and editing is a key part of the budget and a significant time factor as well.

## Target High End Post Production Houses

The Avid/1 will be aimed at high end post production houses, especially ones that meet most of the following profile items:

- More than one on-line suite
- Have advanced equipment: ADO, Abekas, Quantel Paintbox, or Quantel Harry
- Have a number of corporate clients
- Deliver shorter programs such as marketing videos, TV commercials
- Currently have off-line capability, or want to add off line capability
- Face significant competitive pressures

Since the Avid/1 has such broad applicability to a range of videos, and since post production is so competitive, we believe that once one post house adds the Avid/1, this will help us sell the same product to their competitors. Ideally, we hope to create a situation whereby every top post house realizes they must have an Avid/1 in order to compete effectively.

## **Product Rollout Plans**

Beta testing of the Avid/1 is planned for December, 1988, with first customer shipments in April. The 1989 National Association of Broadcasters (NAB) show is a major milestone, but it is a large show where small companies are easily lost in crowd. Therefore, we want to announce our product prior to NAB, and motivate potential buyers to seek us out at the show.

### ***Product Rollout Package***

We will create a package of information aimed specifically at opinion leaders at post production firms. The package will include:

- A videotape showing the Avid/1 in action
- A product brief
- A cost justification showing fast payback
- An audio tape with product and benefits overview

This package will be sent to a carefully-selected list of key individuals at leading post production houses. In addition, the package will be sent to key analysts, and members of the media.

### ***Product Showings***

We will be careful to select beta test sites that will let us show the product at their facility. We will arrange a series of demonstrations to potential buyers, positioning the product showing as a hands-on seminar where editors can try out the system. We expect to have two beta test sites, one in Boston, and a second in New York.

### ***NAB Show***

We will have a booth at NAB, or we will try to get space in a larger company's booth. For example, Cinedco showed their product at NAB in the JVC booth, since they use JVC tape decks. We may work a similar deal with Panasonic, Sony, or possibly Abekas.

## **A Compelling Reason to Buy**

We want to build in features into the system that create in our target customer a compelling reason to buy the Avid/1. For example, we can make the system especially good at building multi-layered programs. In this way, any post house that has an Abekas digital disk recorder (crucial for layered programs, common at most high end post houses) will be motivated to buy our product.

This compelling reason to buy will also give us leverage. For example, we might work closely with Abekas to develop our system, and gain a powerful joint marketing partner in the process.

## **Direct Sales Force**

Because this is a high end product in a concentrated geographic marketplace, we will build a direct sales force and market the product directly. There may be opportunities, however, to work with other

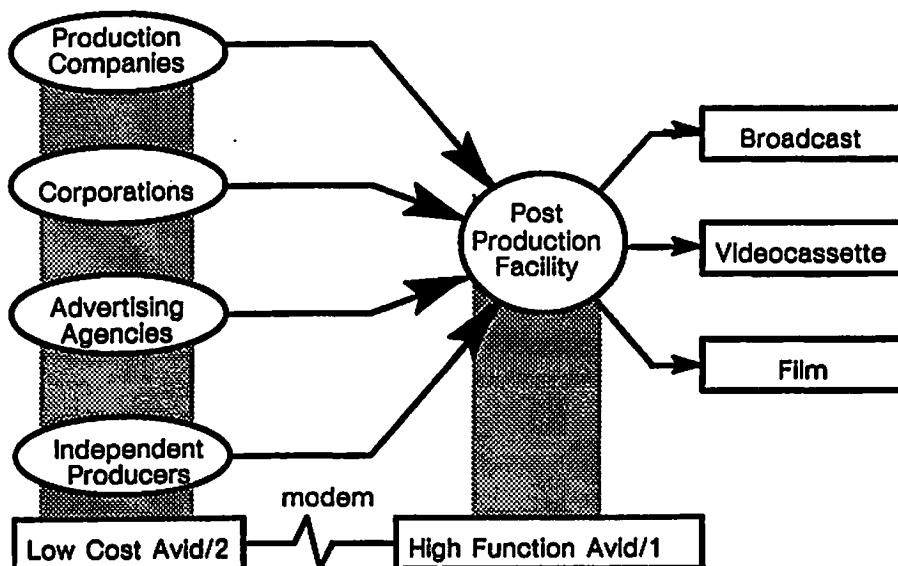
dealers and vendors whose products are complementary to our own. In addition, Apollo's worldwide sales offices will give us a base of support in most major cities. With the addition of a small amount of hardware, we can demonstrate the system on a standard Apollo workstation at any Apollo office.

## Support Strategies

We are making the Avid/1 easy to support in the field. The system automatically logs every step that the user makes, and saves this log if the user finds a bug. The system will send us bug reports by modem, a feature that will be especially important during beta testing. In addition, support people at Avid can run the customer's system remotely, and show them how to use certain features, or how to solve a problem.

## Expand Upstream to Corporations and Program Originators

We believe that non-linear editing will become a requirement for video post production houses, and that is the market we are targeting first. As non-linear editing becomes more accepted, and the benefits become clear to the clients of post houses, our future products will target the large group of editors within those organizations. The low-cost system will work smoothly with the high end system at the post house, so the finished program can be easily generated by sending the final edit decision list across a modem.



# *Future Products*

## **Hardware and Software Trends**

The hardware needed for media-based applications is evolving at a rapid pace, and this will greatly expand the opportunities to apply Avid's technology in new ways, and on new platforms. For example:

NeXT, Inc's new PC is widely rumored to provide full quality digital audio sound.

Apple has a high level group looking at video capabilities for future PCs.

Commodore is actively targeting video for their PCs.

Direct-to-disk audio recorder peripherals are now available for PCs.

RCA's DVI provides full motion video from a standard CD disk.

Maxtor's re-writable disks will drop storage costs to under 10 cents per megabyte.

Tandy says it will deliver CD recorder/players for under \$500 next year.

In the software area, there is increasing talk about media-based applications. A new magazine, called *Hypermedia* is dedicated to multimedia applications. Developers are looking at ways to incorporate sound and motion video into certain applications. MIT has extended the X-windows standard to incorporate integrated video, and Parallax Graphics has developed extensions to the NeWS windowing standard for their video add-in boards.

## **Product Opportunities**

The fast breaking developments in both hardware and software will generate a number of product opportunities for Avid.

### *Desktop Video*

The idea that you can make a media presentation right at your desk is now coming into vogue, under the term *desktop video*. The analogy to desktop publishing is a good one. Desktop video lets ordinary people turn out striking productions, and at relatively low cost.

But it must be remembered that desktop publishing really took off only after the following factors came together:

<b>Hardware Platform</b>	A suitable hardware platform was widely available — namely the Apple Macintosh. For desktop video, the current platforms need new hardware capabilities.
<b>Laser Printer</b>	A low cost output device — namely the laser printer — became routinely available, and at a price affordable by large numbers of small companies and individuals. A desktop video equivalent to the laser printer is needed to make desktop video really take off.
<b>Postscript</b>	Postscript is a page description language that provided a convenient way to drive a laser print engine. It was (and is) crucial to the success of desktop publishing.
<b>Operating System</b>	The operating system needs for desktop publishing are similar to previous applications, and thus the O/S was not a stumbling point. In desktop video, current operating systems lack the ability to deal with media such as video or audio.

In each of the areas outlined above, there lies an opportunity for Avid.

## *Media Computers*

We believe that media production is going to be the center of a new type of computer that we call a *media computer*. The media computer is an extension of today's PC's to include video, audio, MIDI (a standard for digitally-encoded music), animation, and other types of media capabilities. Much like engineering workstations eliminated the need for users to integrate graphics, networking, and CPU's, the media computer will provide the integration that media applications require.

## *Media O/S*

The Media operating system will be a crucial component of the media computer. Even the first Avid system will incorporate a simple media O/S. In the long term, some company has the opportunity to become the "Microsoft" of media O/S's. While development of a generic O/S is a stretch from where we've started, our technology will give us an early lead in this area, and we should consider that the media O/S represents an opportunity in and of itself.

## *Media Description Language*

Building a media production and editing it on a computer requires some method to describe that production. We call this a *media description language* (MDL). We are already developing a basic MDL for use in the Avid/1, and this could be extended to be used in more generic ways.

Just as Adobe's Postscript has become the defacto standard for all laser printers, we see that media production systems have the same need for standardization, and in the long run offer a vast product opportunity for advanced MDL interpreters.

## *Media Printer*

Desktop video will require a fast, low cost output device. This system must be able to take in "raw" media, such as video, audio and MIDI information. It must then combine the media according to an MDL and generate a finished output, initially a videotape, but in the future, it might be a recordable CD-ROM, or a digital videotape.

Today, the video post production houses act as huge media printers. They take in broadcast quality video and audio, apply a number of people (editors) to describe how the media will be combined, and they generate an output tape. Technology can and will dramatically reduce the cost of this process, and the need for human intervention will be reduced to where it is really needed: for creative input, not for pushing buttons telling computers what to do for each and every step in the process.

## *Interactive Media*

Just as the tools to make media begin to come on stream, the importance of interactive media will also be growing. DVI will provide a low cost delivery vehicle for interactive media. Media editors will need to be extended to handle interactivity. This is an opportunity for Avid, since we could extend our system to handle editing of interactive media productions.

## *Summary*

Avid is developing a video editing capability aimed at a readily-identifiable market group that has a need for faster, more creative editing methods. Existing market and technology trends will provide Avid with a wide range of additional product opportunities that will build on the fundamental technologies we are developing.



# FIVE YEAR FINANCIAL SUMMARY

	4	8	12	16	20
	Dec-89	Dec-90	Dec-91	Dec-92	Dec-93

UNIT SALES	12	102	325	655	1050
HEADCOUNT	24	44	100	178	254

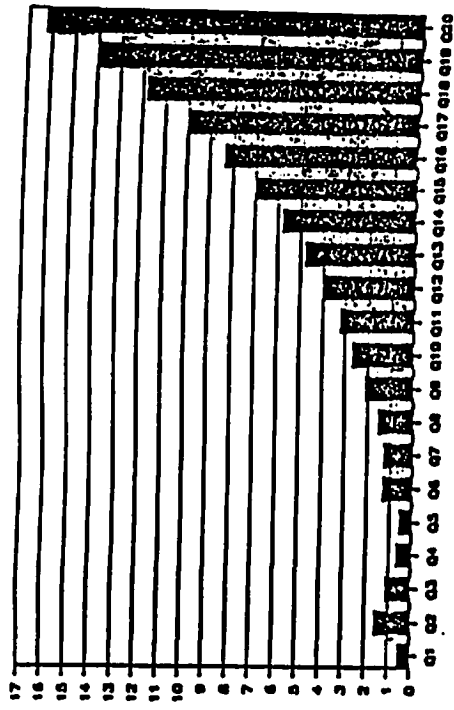
REVENUES	\$718	\$5,793	\$17,440	\$33,336	\$50,810
PBT	(\$1,388)	(\$30)	\$3,548	\$7,764	\$13,149
	-193%	-1%	20%	23%	26%

DEBT FINANCING	\$0	\$539	\$1,262	\$1,288	\$1,253
EQUITY FINANCING	\$2,000	\$1,000	\$0	\$0	\$0

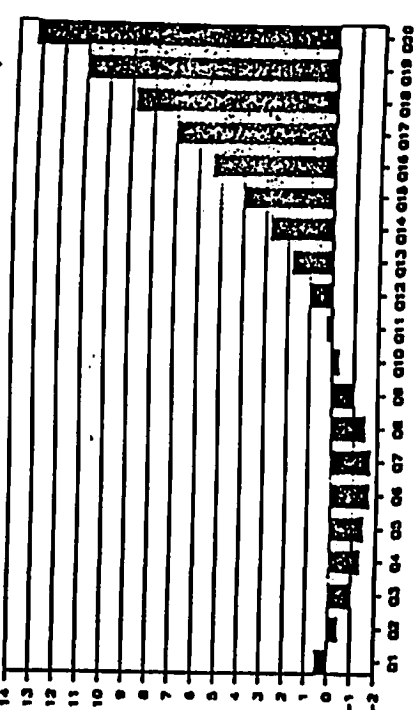
CASH	\$707	\$1,533	\$3,969	\$8,387	\$16,245
CASH (SUBTRACT EQUITY)	-1293	-1467	969	5387	13245

KEY ASSUMPTIONS:					
Payable Days	45	45	45	45	45
Receivable Days	45	35	35	35	35
Borrowing as % of Rec	0%	50%	70%	70%	70%

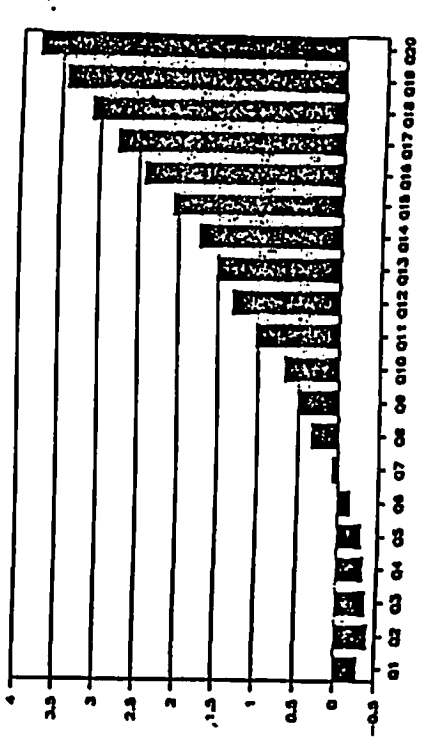
CASH AT END OF PERIOD



CASH AT END OF PERIOD (SUBTRACT EQUITY)



PROFIT BEFORE TAX



## INCOME STATEMENT

	1990	1991	1992	1993
REVENUE	\$718	\$5,793	\$17,440	\$33,336
COST OF SALES	\$289	\$2,343	\$7,087	\$13,625
GROSS MARGIN	\$429	\$3,450	\$10,353	\$19,711
OPERATING EXPENSES	\$1,803	\$3,439	\$6,655	\$11,662
OPERATING INCOME	(\$1,374)	\$11	\$3,698	\$8,048
INTEREST, OTHER EX	\$14	\$41	\$151	\$285
PROFIT BEFORE TAX	(\$1,388)	(\$30)	\$3,548	\$7,764
TAXES	\$0	\$0	\$874	\$2,873
PROFIT AFTER TAX	(\$1,388)	(\$30)	\$2,673	\$4,891



22-Mar-89	Q13 Mar-92	Q14 Jun-92	Q15 Sep-92	Q16 Dec-92	Q17 Mar-93	Q18 Jun-93	Q19 Sep-93	Q20 Dec-93
!!								
BALANCE SHEET ASSUMPTIONS								
Accounts Receivable:	35	35	35	35	35	35	35	35
Inventory:	60	60	60	60	60	60	60	60
Prepays:								
Asset Acquisition:								
Depreciation:								
Other Fixed Assets:								
Accounts Payable:	45	45	45	45	45	45	45	45
Pct of Op exp on account	33%	33%	33%	33%	33%	33%	33%	33%
Short Term Borrowing:	70%	70%	70%	70%	70%	70%	70%	70%
Preferred Stock this period	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Term Debt (periodic)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pct Long Term borrowing on	33%	33%	33%	33%	33%	33%	33%	33%
OTHER ASSUMPTIONS								
Pct of systems on maint								
Maint charge per mo								
Cost of sales %								
Cost of Sales -Maint %								
Interest rate								
Tax Rate								
Days per period								
Pct of CGS inventoried								
Salary as pct of burdened s								

	22-Mar-89	Dec-88	Q1 Mar-89	Q2 Jun-89	Q3 Sep-89	Q4 Dec-89	Q5 Mar-90	Q6 Jun-90	Q7 Sep-90	Q8 Dec-90	Q9 Mar-91	Q10 Jun-91	Q11 Sep-91	Q12 Dec-91
BALANCE SHEETS														
CASH		\$325	\$540	\$1,582	\$1,122	\$707	\$554	\$1,318	\$1,291	\$1,533	\$2,124	\$2,703	\$3,242	\$3,969
ACCOUNTS RECEIVABLE		\$0	\$0	\$30	\$119	\$205	\$269	\$441	\$652	\$858	\$1,161	\$1,457	\$1,844	\$2,223
INVENTORY		\$0	\$0	\$12	\$46	\$80	\$134	\$218	\$321	\$419	\$565	\$704	\$888	\$1,063
OTHER		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL CURRENT ASSETS		\$325	\$540	\$1,624	\$1,287	\$991	\$957	\$1,978	\$2,264	\$2,810	\$3,850	\$4,864	\$5,974	\$7,255
EQUIPMENT		\$30	\$100	\$170	\$200	\$230	\$290	\$350	\$400	\$430	\$570	\$720	\$840	\$990
OTHER		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
ACCUMULATED DEPRECIATION		\$0	\$4	\$11	\$19	\$29	\$42	\$58	\$77	\$97	\$124	\$158	\$199	\$247
TOTAL FIXED ASSETS		\$30	\$97	\$160	\$181	\$201	\$248	\$292	\$324	\$334	\$447	\$562	\$642	\$744
TOTAL ASSETS		\$355	\$636	\$1,783	\$1,468	\$1,192	\$1,205	\$2,270	\$2,587	\$3,144	\$4,297	\$5,426	\$6,615	\$7,998
ACCOUNTS PAYABLE - OP EXP		\$0	\$45	\$72	\$83	\$93	\$115	\$135	\$151	\$159	\$205	\$253	\$290	\$335
ACCOUNTS PAYABLE - CGS		\$0	\$0	\$12	\$46	\$80	\$134	\$218	\$321	\$419	\$565	\$704	\$888	\$1,063
ACCRUED LIABILITIES		\$0	\$25	\$41	\$47	\$53	\$65	\$76	\$85	\$90	\$116	\$143	\$164	\$189
SHORT TERM LOANS		\$0	\$0	\$0	\$0	\$0	\$135	\$221	\$326	\$429	\$813	\$1,020	\$1,291	\$1,556
OTHER		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL CURRENT LIABILITIES		\$0	\$70	\$125	\$176	\$226	\$448	\$650	\$883	\$1,097	\$1,698	\$2,120	\$2,632	\$3,143
LONG TERM DEBT - PERIODIC		\$0	\$500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
LONG TERM DEBT - EQUIPMENT		\$0	\$0	\$0	\$0	\$0	\$82	\$96	\$107	\$110	\$147	\$185	\$212	\$245
TOTAL LONG TERM DEBT		\$0	\$500	\$0	\$0	\$0	\$82	\$96	\$107	\$110	\$147	\$185	\$212	\$245
DEFERRED TAXES		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL LIABILITIES		\$0	\$570	\$125	\$176	\$226	\$529	\$746	\$990	\$1,207	\$1,845	\$2,306	\$2,844	\$3,389
EQUITY														
CAPITAL STOCK		\$600	\$600	\$2,600	\$2,600	\$2,600	\$2,600	\$3,600	\$3,600	\$3,600	\$3,600	\$3,600	\$3,600	\$3,600
RETAINED EARNINGS		(\$245)	(\$534)	(\$942)	(\$1,308)	(\$1,633)	(\$1,925)	(\$2,077)	(\$2,002)	(\$1,664)	(\$1,149)	(\$479)	\$172	\$1,010
TOTAL SH EQUITY		\$355	\$66	\$1,658	\$1,292	\$967	\$675	\$1,523	\$1,598	\$1,936	\$2,451	\$3,121	\$3,772	\$4,610
TOTAL LIAB'S & SH EQUITY		\$355	\$636	\$1,783	\$1,468	\$1,192	\$1,205	\$2,270	\$2,587	\$3,144	\$4,297	\$5,426	\$6,615	\$7,998

22-Mar-89	Q13 Mar-92	Q14 Jun-92	Q15 Sep-92	Q16 Dec-92	Q17 Mar-93	Q18 Jun-93	Q19 Sep-93	Q20 Dec-93
<b>BALANCE SHEETS</b>								
CASH	\$4,817	\$5,809	\$6,975	\$8,387	\$10,022	\$11,878	\$13,953	\$16,245
ACCOUNTS RECEIVABLE	\$2,593	\$2,955	\$3,398	\$3,832	\$4,256	\$4,671	\$5,076	\$5,472
INVENTORY	\$1,231	\$1,392	\$1,592	\$1,783	\$1,965	\$2,140	\$2,307	\$2,467
OTHER	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>TOTAL CURRENT ASSETS</b>	<b>\$8,641</b>	<b>\$10,155</b>	<b>\$11,965</b>	<b>\$14,002</b>	<b>\$16,243</b>	<b>\$18,689</b>	<b>\$21,337</b>	<b>\$24,183</b>
EQUIPMENT	\$1,190	\$1,380	\$1,590	\$1,770	\$1,960	\$2,150	\$2,340	\$2,530
OTHER	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
ACCUMULATED DEPRECIATION	\$305	\$372	\$450	\$537	\$634	\$740	\$855	\$980
<b>TOTAL FIXED ASSETS</b>	<b>\$886</b>	<b>\$1,008</b>	<b>\$1,140</b>	<b>\$1,233</b>	<b>\$1,327</b>	<b>\$1,411</b>	<b>\$1,485</b>	<b>\$1,550</b>
<b>TOTAL ASSETS</b>	<b>\$9,526</b>	<b>\$11,163</b>	<b>\$13,105</b>	<b>\$15,235</b>	<b>\$17,570</b>	<b>\$20,100</b>	<b>\$22,822</b>	<b>\$25,733</b>
<b>LIABILITIES &amp; EQUITY</b>								
ACCOUNTS PAYABLE - OP EXP	\$394	\$447	\$505	\$551	\$598	\$643	\$687	\$728
ACCOUNTS PAYABLE - CGS	\$1,231	\$1,392	\$1,592	\$1,783	\$1,965	\$2,140	\$2,307	\$2,467
ACCRUED LIABILITIES	\$223	\$253	\$286	\$311	\$338	\$364	\$388	\$412
SHORT TERM LOANS	\$1,815	\$2,068	\$2,379	\$2,682	\$2,979	\$3,270	\$3,553	\$3,831
OTHER	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>TOTAL CURRENT LIABILITIES</b>	<b>\$3,663</b>	<b>\$4,161</b>	<b>\$4,761</b>	<b>\$5,327</b>	<b>\$5,881</b>	<b>\$6,417</b>	<b>\$6,936</b>	<b>\$7,438</b>
LONG TERM DEBT - PERIODIC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
LONG TERM DEBT - EQUIPMENT	\$292	\$333	\$376	\$407	\$438	\$465	\$490	\$512
<b>TOTAL LONG TERM DEBT</b>	<b>\$292</b>	<b>\$333</b>	<b>\$376</b>	<b>\$407</b>	<b>\$438</b>	<b>\$465</b>	<b>\$490</b>	<b>\$512</b>
DEFERRED TAXES	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>TOTAL LIABILITIES</b>	<b>\$3,955</b>	<b>\$4,493</b>	<b>\$5,137</b>	<b>\$5,734</b>	<b>\$6,319</b>	<b>\$6,882</b>	<b>\$7,426</b>	<b>\$7,949</b>
<b>EQUITY</b>								
CAPITAL STOCK	\$3,600	\$3,600	\$3,600	\$3,600	\$3,600	\$3,600	\$3,600	\$3,600
RETAINED EARNINGS	\$1,971	\$3,070	\$4,368	\$5,901	\$7,651	\$9,617	\$11,796	\$14,184
<b>TOTAL SH EQUITY</b>	<b>\$5,571</b>	<b>\$6,670</b>	<b>\$7,968</b>	<b>\$9,501</b>	<b>\$11,251</b>	<b>\$13,217</b>	<b>\$15,396</b>	<b>\$17,784</b>
<b>TOTAL LIAB'S &amp; SH EQUITY</b>	<b>\$9,526</b>	<b>\$11,163</b>	<b>\$13,105</b>	<b>\$15,235</b>	<b>\$17,570</b>	<b>\$20,100</b>	<b>\$22,822</b>	<b>\$25,733</b>

22-Mar-89		Dec-88		INCOME STATEMENT											
01	02	03	04	05	06	07	08	09	10	11	12				
Mar-89	Jun-89	Sep-89	Dec-89	Mar--90	Jun-90	Sep-90	Dec-90	Mar-91	Jun-91	Sep-91	Dec-91				
REVENUE	\$0	\$241	\$416	\$702	\$1,152	\$1,701	\$2,238	\$3,029	\$3,801	\$4,811	\$5,799				
			\$718				\$5,793				\$17,440				
COST OF SALES	\$0	\$97	\$168	\$283	\$465	\$688	\$907	\$1,228	\$1,543	\$1,955	\$2,360				
	NA	40%	40%	40%	40%	40%	41%	41%	41%	41%	41%				
GROSS MARGIN	\$0	\$144	\$248	\$419	\$686	\$1,013	\$1,332	\$1,801	\$2,258	\$2,856	\$3,439				
	NA	60%	60%	60%	60%	60%	59%	59%	59%	59%	59%				
OPERATING EXPENSES	\$275	\$444	\$574	\$704	\$830	\$927	\$978	\$1,260	\$1,555	\$1,781	\$2,060				
	NA	72%	138%	100%	72%	55%	44%	42%	41%	37%	36%				
OPERATING INCOME	(\$275)	(\$408)	(\$325)	(\$285)	(\$143)	\$86	\$354	\$541	\$703	\$1,075	\$1,379				
	NA	-667%	-78%	-41%	-12%	5%	16%	18%	18%	22%	24%				
INTEREST, OTHER EXPENSE	\$14	\$0	\$0	\$6	\$9	\$12	\$15	\$26	\$33	\$41	\$50				
PROFIT BEFORE TAX	(\$289)	(\$408)	(\$325)	(\$291)	(\$152)	\$74	\$339	\$515	\$669	\$1,034	\$1,330				
	NA	-667%	-78%	-41%	-13%	4%	15%	17%	18%	21%	23%				
TAXES	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$382	\$492				
	0%	0%	0%	0%	0%	0%	0%	0%	0%	37%	37%				
PROFIT AFTER TAX	(\$289)	(\$408)	(\$325)	(\$291)	(\$152)	\$74	\$339	\$515	\$669	\$651	\$938				
	NA	-667%	-78%	-41%	-13%	4%	15%	17%	18%	14%	14%				

22-Mar-89

## INCOME STATEMENT

	Q13 Mar-92	Q14 Jun-92	Q15 Sep-92	Q16 Dec-92	Q17 Mar-93	Q18 Jun-93	Q19 Sep-93	Q20 Dec-93
REVENUE	\$6,764	\$7,708	\$8,866	\$9,998	\$11,104	\$12,186	\$13,243	\$14,277
COST OF SALES	\$2,758	\$3,148	\$3,625	\$4,094	\$4,555	\$5,007	\$5,451	\$5,887
GROSS MARGIN	\$4,007	\$4,560	\$5,240	\$5,903	\$6,549	\$7,179	\$7,792	\$8,390
OPERATING EXPENSES	\$2,422	\$2,750	\$3,104	\$3,386	\$3,676	\$3,955	\$4,223	\$4,479
OPERATING INCOME	\$1,585	\$1,810	\$2,137	\$2,517	\$2,873	\$3,223	\$3,569	\$3,910
INTEREST, OTHER EXPENSE	\$88	\$66	\$76	\$85	\$94	\$103	\$111	\$119
PROFIT BEFORE TAX	\$1,527	\$1,744	\$2,061	\$2,432	\$2,779	\$3,121	\$3,458	\$3,791
TAXES	\$565	\$645	\$763	\$900	\$1,028	\$1,155	\$1,279	\$1,402
PROFIT AFTER TAX	\$962	\$1,099	\$1,298	\$1,532	\$1,751	\$1,966	\$2,179	\$2,388



22-Mar-89 Dec-88

CASH FLOW PROJECTIONS

	Q1 Mar-89	Q2 Jun-89	Q3 Sep-89	Q4 Dec-89	Q5 Mar-90	Q6 Jun-90	Q7 Sep-90	Q8 Dec-90	Q9 Mar-91	Q10 Jun-91	Q11 Sep-91	Q12 Dec-91
FUNDS FROM:												
OPERATIONS	(\$289)	(\$408)	(\$366)	(\$325)	(\$291)	(\$152)	\$74	\$339	\$515	\$669	\$651	\$838
DEPRECIATION	\$4	\$7	\$9	\$10	\$13	\$18	\$19	\$20	\$27	\$35	\$41	\$48
AMORTIZATION	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SUBTOTAL FROM OPS	(\$285)	(\$401)	(\$358)	(\$315)	(\$278)	(\$136)	\$93	\$359	\$542	\$704	\$692	\$886
FUNDS USED:												
INCREASE W/C												
A/R	\$0	\$30	\$88	\$86	\$64	\$172	\$211	\$206	\$303	\$296	\$387	\$379
INVTY	\$0	\$12	\$35	\$33	\$54	\$85	\$103	\$98	\$146	\$140	\$183	\$176
OTHER	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SUBTOTAL	\$0	\$42	\$123	\$120	\$118	\$257	\$313	\$304	\$449	\$436	\$570	\$554
DECREASE W/C												
A/P	\$45	\$39	\$45	\$43	\$75	\$105	\$118	\$107	\$191	\$188	\$220	\$221
ACCD LIAB	\$25	\$16	\$6	\$6	\$12	\$12	\$9	\$5	\$26	\$27	\$21	\$26
OTHER	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SUBTOTAL	\$70	\$55	\$51	\$49	\$87	\$117	\$127	\$111	\$217	\$215	\$240	\$247
PURCH FIXED ASSETS	\$70	\$70	\$30	\$30	\$60	\$60	\$50	\$30	\$140	\$150	\$120	\$150
DEFERRED TAX CREDIT	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SUBTOTAL USED IN OPS	(\$0)	\$57	\$102	\$100	\$91	\$200	\$236	\$223	\$371	\$371	\$450	\$458
NET INCREASE (DECREASE) FRO	(\$285)	(\$458)	(\$460)	(\$416)	(\$369)	(\$336)	(\$143)	\$136	\$171	\$333	\$242	\$428
FUNDS PROVIDED BY:												
EQUITY												
COMMON STOCK	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PREFERRED STOCK	\$0	\$2,000	\$0	\$0	\$0	\$1,000	\$0	\$0	\$0	\$0	\$0	\$0
SUBTOTAL EQUITY	\$0	\$2,000	\$0	\$0	\$0	\$1,000	\$0	\$0	\$0	\$0	\$0	\$0
DEBT												
SHORT TERM BORROWINGS	\$0	\$0	\$0	\$0	\$135	\$86	\$105	\$103	\$384	\$207	\$271	\$265
LONG TERM BORROWINGS	\$500	(\$500)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
INCREASE IN CAP LEASES	\$0	\$0	\$0	\$0	\$82	\$15	\$10	\$3	\$37	\$38	\$26	\$14
SUBTOTAL DEBT	\$500	(\$500)	\$0	\$0	\$216	\$101	\$116	\$106	\$421	\$245	\$297	\$299
TOTAL FUNDS FROM FINANCING	\$500	\$1,500	\$0	\$0	\$216	\$1,101	\$116	\$106	\$421	\$245	\$297	\$299
NET FUNDS PROVIDED (APPLIED)	\$215	\$1,042	(\$460)	(\$416)	(\$153)	\$764	(\$28)	\$242	\$591	\$578	\$539	\$727
CASH AT BEGINNING OF PERIOD	\$325	\$540	\$1,582	\$1,122	\$707	\$554	\$1,318	\$1,291	\$1,533	\$2,124	\$2,703	\$3,242
CASH AT END OF PERIOD	\$540	\$1,582	\$1,122	\$707	\$554	\$1,318	\$1,291	\$1,533	\$2,124	\$2,703	\$3,242	\$3,969

(9)

22-Mar-89	Q13 Mar-92	Q14 Jun-92	Q15 Sep-92	Q16 Dec-92	Q17 Mar-93	Q18 Jun-93	Q19 Sep-93	Q20 Dec-93
HEADCOUNT INCREASE	3 1 6 7 3 --- 20	3 1 6 7 2 --- 19	4 1 6 8 2 --- 21	3 1 6 7 1 --- 18	3 1 6 7 2 --- 19	3 1 6 7 2 --- 19	3 1 6 7 2 --- 19	3 1 6 7 2 --- 19
HEADCOUNT TOTALS	27 7 34 36 16 --- 120	30 8 40 43 18 --- 139	34 9 46 51 20 --- 160	37 10 52 58 21 --- 178	40 11 58 65 23 --- 197	43 12 64 72 25 --- 216	46 13 70 79 27 --- 235	49 14 76 86 29 --- 254
ANNUAL REV PER EMPLOYEE	\$225	\$222	\$222	\$225	\$225	\$226	\$225	\$225
BURDENED SALARY (per year)	88.6 88.6 83.4 69.4 83.4	87.8 87.8 82.2 67.3 82.2	86.9 86.9 80.9 65.3 80.9	86.0 86.0 79.7 63.3 79.7	85.1 85.1 78.5 61.4 78.5	84.3 84.3 77.3 59.6 77.3	83.5 83.5 76.2 57.8 76.2	82.6 82.6 75.0 56.1 75.0
TOTAL HEADCOUNT-RELATED EXP (per period)	599.7 155.2 709.5 624.9 333.9 --- 2422	658.6 175.6 822.2 724.0 370.0 --- 2750	738.9 195.6 931.3 832.9 404.9 --- 3104	796.1 215.2 1037.0 918.8 418.8 --- 3386 11662.2	852.0 234.3 1139.3 998.8 451.8 --- 3676	906.8 253.1 1238.3 1073.2 483.7 --- 3955	960.3 271.4 1334.1 1142.2 514.6 --- 4223	1012.7 289.4 1426.7 1206.1 544.4 --- 4479 16333.5
CAPITAL PER NEW EMPLOYEE	10.0 10.0 10.0 10.0 10.0	10.0 10.0 10.0 10.0 10.0	10.0 10.0 10.0 10.0 10.0	10.0 10.0 10.0 10.0 10.0	10.0 10.0 10.0 10.0 10.0	10.0 10.0 10.0 10.0 10.0	10.0 10.0 10.0 10.0 10.0	10.0 10.0 10.0 10.0 10.0
EMPLOYEE-RELATED CAPITAL	30.0 10.0 60.0 70.0 30.0 --- 200	30.0 10.0 60.0 70.0 20.0 --- 190	40.0 10.0 60.0 80.0 20.0 --- 210	30.0 10.0 60.0 70.0 10.0 --- 180	30.0 10.0 60.0 70.0 20.0 --- 190	30.0 10.0 60.0 70.0 20.0 --- 190	30.0 10.0 60.0 70.0 20.0 --- 190	30.0 10.0 60.0 70.0 20.0 --- 190
ADDITIONAL CAPITAL EQUIP	0.0 0.0 0.0 --- 0.0	0.0 0.0 0.0 --- 0.0	0.0 0.0 0.0 --- 0.0	0.0 0.0 0.0 --- 0.0	0.0 0.0 0.0 --- 0.0	0.0 0.0 0.0 --- 0.0	0.0 0.0 0.0 --- 0.0	0.0 0.0 0.0 --- 0.0
TOTAL CAPITAL ACQUISITIONS Cumulative assets	200.0 1160.0	190.0 1350.0	210.0 1560.0	180.0 1740.0	190.0 1930.0	190.0 2120.0	190.0 2310.0	190.0 2500.0

	22-Mar-89	Q1 Mar-89	Q2 Jun-89	Q3 Sep-89	Q4 Dec-89	Q5 Mar-90	Q6 Jun-90	Q7 Sep-90	Q8 Dec-90	Q9 Mar-91	Q10 Jun-91	Q11 Sep-91	Q12 Dec-91
UNIT SALES		0	1	4	7	12	20	30	40	55	70	90	110
					12				102				325
HEADCOUNT		11	18	21	24	30	36	41	44	58	73	85	100
REVENUES		\$0	\$61	\$241	\$416	\$702	\$1,152	\$1,701	\$2,238	\$3,029	\$3,801	\$4,811	\$5,799
					\$718				\$5,793				\$17,440
PROFIT BEFORE TAX		(\$289)	(\$408)	(\$366)	(\$325)	(\$291)	(\$152)	\$74	\$339	\$515	\$669	\$1,034	\$1,330
		NA	-667%	-152%	(\$1,388)	-41%	-13%	4%	(\$30)	17%	18%	21%	\$3,548
					-193%				-1%				23%
DEBT FINANCING		\$500	(\$500)	\$0	\$0	\$216	\$101	\$116	\$106	\$421	\$245	\$297	\$299
EQUITY FINANCING		\$0	\$2,000	\$0	\$0	\$0	\$1,000	\$0	\$539	\$0	\$0	\$0	\$1,262
					\$2,000				\$1,000				\$0
CASH AT END OF PERIOD		\$540	\$1,582	\$1,122	\$707	\$554	\$1,318	\$1,291	\$1,533	\$2,124	\$2,703	\$3,242	\$3,969
CASH AT END (SUBTRACT EQUIT		540	-418	-878	-1293	-1446	-1682	-1709	-1467	-876	-297	242	969
KEY ASSUMPTIONS:													
Payable Days		45	45	45	45	45	45	45	45	45	45	45	45
Receivable Days		45	45	45	45	35	35	35	35	35	35	35	35
Borrowing as % of Receiva		0%	0%	0%	0%	50%	50%	50%	50%	70%	70%	70%	70%

	22-Mar-89	013 Mar-92	014 Jun-92	015 Sep-92	016 Dec-92	017 Mar-93	018 Jun-93	019 Sep-93	020 Dec-93
UNIT SALES		130	150	175	200 655	225	250	275	300 1050
HEADCOUNT		120	139	160	178	197	216	235	254
REVENUES		\$6,764	\$7,708	\$8,866	\$9,998 \$33,336	\$11,104	\$12,186	\$13,243	\$14,277 \$50,810
PROFIT BEFORE TAX		\$1,527	\$1,744	\$2,061	\$2,432 \$7,764 23%	\$2,779	\$3,121	\$3,458	\$3,791 \$13,149 27% 26%
DEBT FINANCING		\$306	\$294	\$354	\$334 \$1,288	\$328	\$318	\$308	\$299 \$1,253
EQUITY FINANCING		\$0	\$0	\$0	\$0 \$0	\$0	\$0	\$0	\$0 \$0
CASH AT END OF PERIOD		\$4,817	\$5,809	\$6,975	\$8,387	\$10,022	\$11,878	\$13,953	\$16,245
CASH AT END (SUBTRACT EQUIT		1817	2809	3975	5387	7022	8878	10953	13245
KEY ASSUMPTIONS:									
Payable Days		45	45	45	45	45	45	45	45
Receivable Days		35	35	35	35	35	35	35	35
Borrowing as % of Receiva		70%	70%	70%	70%	70%	70%	70%	70%

22-Mar-89												
TOP LEVEL SPREADSHEET												
	01 Mar-89	02 Jun-89	03 Sep-89	04 Dec-89	05 Mar-90	06 Jun-90	07 Sep-90	08 Dec-90	09 Mar-91	10 Jun-91	11 Sep-91	12 Dec-91
Unit Sales	0	1	4	7	12	20	30	40	55	70	90	110
Cumulative Unit Sales	0	1	5	12	24	44	74	114	169	239	329	439
Price as % of prev qtr	100%	100%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
Avg Selling Price	\$60.0	\$60.0	\$58.8	\$57.6	\$56.5	\$55.3	\$54.2	\$53.2	\$52.1	\$51.0	\$50.0	\$49.0
Systems Revenue	\$0	\$60	\$235	\$403	\$678	\$1,107	\$1,627	\$2,126	\$2,865	\$3,573	\$4,502	\$5,393
				\$599				\$5,538				\$16,333
Cumulative Sys Revenue	\$0	\$60	\$295	\$699	\$1,376	\$2,483	\$4,110	\$6,236	\$9,101	\$12,674	\$17,176	\$22,569
Maintenance Revenue	\$0	\$1	\$5	\$13	\$25	\$45	\$74	\$112	\$164	\$228	\$309	\$406
				\$19				\$256				\$1,107
Total Revenue	\$0	\$61	\$241	\$416	\$702	\$1,152	\$1,701	\$2,238	\$3,029	\$4,016	\$5,205	\$6,594
				\$718				\$5,793				\$17,440
Cost of Sales - Systems as % of systems revenue	NA	24 40%	94 40%	161 40%	271 40%	443 40%	651 40%	850 40%	1,146 40%	1,429 40%	1,801 40%	2,157 40%
Cost of Sales - Maint	\$0	\$1	\$3	\$6	\$12	\$22	\$37	\$56	\$82	\$114	\$155	\$203
Gross Margin	\$0	\$37	\$144	\$248	\$419	\$686	\$1,013	\$1,332	\$1,801	\$2,258	\$2,856	\$3,439
Fully burdened expenses	\$275	\$444	\$510	\$574	\$704	\$830	\$927	\$978	\$1,260	\$1,555	\$1,781	\$2,060
Operating Income	(\$275)	(\$408)	(\$366)	(\$325)	(\$285)	(\$143)	\$86	\$354	\$541	\$703	\$1,075	\$1,379
				(\$1,374)				\$11				\$3,898
Interest Expenses	\$14	\$0	\$0	\$0	\$6	\$9	\$12	\$15	\$26	\$33	\$41	\$50
Profit before taxes	(\$289)	(\$408)	(\$366)	(\$325)	(\$291)	(\$152)	\$74	\$339	\$515	\$669	\$1,034	\$1,330
as % of sales	NA	-667%	-152%	-78%	-41%	-13%	4%	15%	17%	18%	21%	23%
Cumulative PBT	(\$534)	(\$942)	(\$1,308)	(\$1,633)	(\$1,925)	(\$2,077)	(\$2,002)	(\$1,664)	(\$1,149)	(\$479)	\$554	\$1,884
Taxes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$492
Profit after tax as % of sales	(\$289)	(\$408)	(\$366)	(\$325)	(\$291)	(\$152)	\$74	\$339	\$515	\$669	\$1,034	\$1,330
	NA	-667%	-152%	-78%	-41%	-13%	4%	15%	17%	18%	21%	23%

(15)